Title: Algorithmic Hiring and the Efficiency Paradox: Systemic Failures of ATS in U.S. Labor Markets

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Abstract:
This paper explores the unintended consequences of applicant tracking systems (ATS) on the U.S. labor market, highlighting how inflexible algorithms, language mismatches, and misaligned efficiency incentives produce systemic dysfunction. Drawing on data from Harvard Business School, the Bureau of Labor Statistics, and industry research, the paper argues that ATS contributes to inflated hiring costs, longer unemployment durations, and the exclusion of qualified job seekers. Rather than increasing efficiency, ATS often narrows talent pipelines and embeds socio-economic bias. These failures harm all stakeholders: employers, recruiters, and candidates alike. The paper concludes by advocating for a transparent, third-party auditing ecosystem to assess algorithmic hiring tools and proposes that restoring two-sided accountability in online hiring markets is critical to addressing labor market inefficiencies.

Introduction

In recent decades, employers have increasingly turned to automated systems to streamline hiring. Applicant Tracking Systems (ATS) promise efficiency, scalability, and bias reduction. However, this paper contends that the widespread use of ATS—particularly those that rely on inflexible filtering and keyword matching—has led to significant distortions in labor market outcomes. This paper critiques these tools on three fronts: inflexibility, language miscommunication, and efficiency failures, and proposes a market-wide solution.

The Inflexibility Issue

Automated systems are often praised for their binary logic: a resume either meets the required qualifications or it does not. But this yes/no filtering system leads to costly oversights. Harvard Business School (2021) found that 88% of employers agree qualified high-skill candidates are screened out because they do not match job descriptions exactly, a figure that rises to 94% for middle-skill candidates. Rigid automation fails to account for human nuance, transferable skills, and common user error.

The economic costs are significant. According to FRED, unfilled job roles have doubled since 2001, growing from 5 million to over 10 million. These vacancies represent both a missed economic opportunity and a direct failure to match available talent to existing demand.

The Language Problem

ATS systems depend heavily on keyword matching and structural formatting. This creates two problems: qualified candidates are excluded for not using the 'right' language, and underqualified candidates with the means to optimize their resumes algorithmically are elevated.

Misinterpretation also arises from a corporate version of the "telephone game"—where job requirements are translated from hiring managers to HR departments to recruiters to algorithms.

Terminology drifts or is oversimplified. A striking example involved a recruiter filtering for "plant experience," yielding candidates with botanical credentials rather than manufacturing backgrounds.

Such issues aren't rare. Resume formatting incompatibility, acronyms unfamiliar to systems, and culturally inconsistent job titles all lead to silent disqualifications. Even experienced professionals are filtered out due to minor semantic mismatches.

The Efficiency Illusion
ATS adoption was justified as a time-saving measure. However, there is little evidence that ATS has improved hiring efficiency. The Bureau of Labor Statistics (2020) notes a lack of available data on job application outcomes, interviews, and offers, underscoring the opacity of these systems.

Average unemployment durations have increased from 12 weeks in 1990 to 22 weeks in 2022.5 While causality is not proven, this trend contradicts the promised efficiency of modern hiring tools. Moreover, as job seekers submit more applications to overcome filtering, employers rely more on automation—creating a self-perpetuating cycle.

Amazon, among others, has abandoned in-house ATS tools after recognizing baked-in bias and poor hiring results. Harvard's "Hidden Workers" study underscores this point, concluding that firms routinely exclude qualified workers due to flawed filtering logic, often based on gaps in employment or lack of formal degrees.

Systemic Consequences and Market Failure
ATS flaws do not merely affect job seekers; they impair labor market function. Employers experience prolonged vacancies and mismatches, recruiters chase quotas without clarity, and entire demographics of talent go untapped.

This represents a market failure. In two-sided markets like labor, trust, visibility, and accountability must exist on both ends. Platforms that reward engagement over outcomes exacerbate inefficiencies. Without feedback from the job-seeking side, platforms lack the corrective mechanisms seen in other digital marketplaces (e.g., Airbnb, Uber, Amazon).

Toward a Solution: Reputation and Auditability
Given the hidden nature of ATS decision-making, public-interest research and systemic audits are vital. The 2020 Sandvig v. Barr decision affirmed the legality of studying online algorithms for bias, opening the door for academic and commercial audit tools.

Just as cybersecurity firms stress-test systems, hiring audits can surface inefficiencies and discriminatory filters. Verified job seeker feedback can also provide a counterbalance to unaccountable automation. Reputation systems that allow both parties to evaluate each other—similar to e-commerce—may offer a scalable correction to this imbalance.

Conclusion
ATS were introduced to solve inefficiencies. But instead, they've codified them. This paper calls for a market redesign rooted in transparency, feedback, and two-sided accountability. Employers,

candidates, and technologists alike must recognize that fixing hiring will require not better filtering alone, but better systems of trust, data, and dialogue.

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